



Monitoring the field occurrence of appropriate animal diseases can highlight the potential for zoonotic transmission and provide a sentinel for human environmental and foodborne health risks. These reports, which primarily relate to farmed animal species, summarise the surveillance activities of the Veterinary Laboratories Agency (VLA) for predominantly non-statutory zoonoses and infections shared between man and animals in England and Wales using data gathered by the network of Regional Laboratories (RLs). Diagnostic data for Great Britain is provided by the VIDA surveillance system, including information from the Scottish Agricultural College (SAC) Veterinary Services. Summaries of joint veterinary/medical investigations into incidents and outbreaks of non-statutory zoonotic disease and associated activities are also included. This report covers the three month period between April and June 2008. The Non-Statutory Zoonoses project (FZ2100) is funded by Defra through the VLA's Food and Environmental Safety programme and also uses returns from the Emerging Diseases and Welfare programme. Information concerning notifiable or compulsorily reportable zoonoses is recorded elsewhere under other projects such as FZ2000 (Salmonella).

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## 1. General scanning surveillance

### 1.1 VIDA data for Great Britain: April – June 2008

This table (collated 17/07/08) summarises clinical diagnoses from specimens submitted to VLA and SAC laboratories between April and June 2008 (Q2) and compares the findings with the same quarters in 2007 and 2006. It includes rare zoonotic infections and those for which zoonotic potential is confined predominantly to immunocompromised individuals. Diagnoses use strict criteria and are recorded (once only per incident) using the Veterinary Investigation Diagnostic Analysis (VIDA) system. The list is subject to selection, submission and testing bias. It is not definitive and excludes notifiable or reportable diseases. It is intended only as a general guide for veterinary and public health professionals to the diagnosed occurrence of animal-associated infections in predominantly farmed animal species. This revised format, which incorporates SAC data, was first introduced in 2008.

Diagnosis	Q2 Total (all species)			Q2 Diagnoses in 2008						
	2006	2007	2008	Cattle	Sheep	Goats	Pigs	Birds <sup>1</sup>	Misc	Wildlife <sup>2</sup>
Babesiosis	5	6	7	7						
Brucella in marine mammals	0	0	1						0	1
Campylobacter fetopathy	31	16	20	3	17	0			0	0
Chlamydiosis ( <i>C. psittaci</i> )	1	1	0					0		
<i>Chlamydomphila abortus</i> fetopathy	58	95	49	0	49	0			0	0
<i>Coryne. pseudotuberculosis</i> (CLA)	22	27	15		14	1				
Cryptosporidiosis	472	292	454	421	29	3	0	0	1	0
Cysticercosis	0	2	0		0					
Dermatophilus infection	3	2	1	0	0	0		0	1	
Erysipelas	7	16	5		2		2	1		
Fasciolosis	255	161	389	318	63	0			8	0
Hydatidosis	0	0	0		0					
Leptospirosis (all categories)	11	29	7	7	0	0	0		0	0
Listeriosis (all categories)	43	36	45	10	32	3	0	0	0	0
Louping ill	12	22	6	1	5			0		
Orf (parapox virus)	12	11	10		8	2				
<i>Pasteurella multocida</i> pneumonia/pasteurellosis	111	96	69	34	20	0	11	3	0	1
Pseudocowpox (parapox virus)	0	2	0	0						
Q Fever/ <i>Coxiella burnetii</i>	0	2	0	0	0	0			0	0
Red Mite ( <i>Dermanyssus galinae</i> )	3	7	1					1		
Ringworm	11	5	4	3	1	0	0	0	0	0
<i>Sarcoptes scabiei</i> infection	1	2	1	0		0	1			
Streptococcal infection (excluding bovine mastitis)	26	41	21		2	0	19		0	0
Swine influenza	5	2	2				2			
Toxoplasmosis (incl. fetopathy)	66	95	59		59	0			0	0
Tuberculosis (excl. <i>M. bovis</i> )	16	7	3			0	0	2	1	0
Yersiniosis (incl. fetopathy)	7	4	9		5	0		2	1	1

NR – Not recorded

Shaded boxes indicate a diagnosis is not available for that species

<sup>1</sup> Includes both domestic and wild birds

<sup>2</sup> Mammals only

#### Comments

There was a marked increase in the number of diagnoses of cryptosporidiosis and fasciolosis compared to the same period in 2007. Reductions in the number of cases in some disease categories mainly appeared to reflect a decline in the number of submissions to diagnostic laboratories rather than a change in the proportion of diagnoses reached, although there may also be some short-term anomalies associated with the recent inclusion of data from Scotland. More detailed information on scanning surveillance diagnoses and trends for endemic diseases is available from [http://www.defra.gov.uk/vla/reports/rep\\_surv.htm](http://www.defra.gov.uk/vla/reports/rep_surv.htm)

## 1.2 Recent reports from Regional Laboratories

This section provides an overview of the main diagnoses and observations concerning zoonotic non-statutory diseases and infections shared between man and animals based on submissions to Regional Laboratories (RLs) of the VLA during the period April to June 2008. It includes incidents that are not necessarily recorded in the VIDA table above and hence there may be some apparent discrepancies. Further information is provided in the reports by the VLA species groups [http://www.defra.gov.uk/vla/reports/rep\\_surv.htm](http://www.defra.gov.uk/vla/reports/rep_surv.htm) and the monthly surveillance reports in the Veterinary Record derived from the Emerging Diseases and Welfare programme.

### Cattle

**Cryptosporidiosis** was a commonly diagnosed enteric disease, particularly in neonatal calves. In one outbreak in a large dairy herd, all 40 calves were affected with scour and eight died. **Listeria monocytogenes** infection was confirmed on several occasions as the cause of abortion in suckler cows. *L. monocytogenes* was also isolated in a septicaemic neonatal dairy calf. **Campylobacter fetus fetus** was isolated from the stomach contents of an aborted fetus in a dairy herd. **Babesiosis** was implicated as the cause of 15 abortions in a group of 30 suckler heifers and of haematuria in an adult cow. **Pasteurella multocida** septicaemia was diagnosed in a one day old Simmental calf, one of three deaths. **P. multocida** was also confirmed as the cause of abortion. **Parapox virus** (pseudocowpox) was associated with blister-like lesions on the teats in a small suckler herd.

### Sheep and goats

Abortions due to **campylobacter**, **toxoplasma**, **listeria** and **chlamydomphila** were all diagnosed this quarter. Caseous lymphadenitis caused by **Corynebacterium pseudotuberculosis** was confirmed in a ewe with abscesses at the base of the tail, and elsewhere was isolated from an abscess on the head of a lamb. Arthritis and endocarditis due to **E. rhusiopathiae** were diagnosed in a lamb. *E. rhusiopathiae* was also implicated as the cause of septicaemia in an adult ewe, one of three which died at lambing. **Louping ill** was the likely cause of nervous signs and deaths in yearling ewes. **Cryptosporidiosis** caused scour in 10-day-old lambs, including deaths; large numbers of *Cryptosporidium* sp oocysts. were identified in faecal samples from diarrhoeic week-old goats. **Yersinia pseudotuberculosis** was implicated as the cause of an ocular-glandular syndrome in a large herd of milking goats. **Orf** (parapox virus) was detected on teat lesions in dairy goats.

### Pigs

**Streptococcus suis 2** meningitis was confirmed in growing pigs which were convulsing prior to death. **S. suis 7** and **P. multocida** were isolated from piglets with a history of respiratory disease; *S. suis* type 1 septicaemia caused sudden death in young piglets. **E. rhusiopathiae** was isolated from the heart lesions of a pig with endocarditis. **P. multocida** was identified as the cause of pneumonia in a group of finishing pigs. Avian-like H1 influenza A virus was confirmed as the cause of pneumonia in a litter of piglets.

### Birds

**Mycobacterium avium** infection was diagnosed in a falcon which had lived in an aviary with one other bird for the past five years; a further case was identified in an adult mute swan found dead in a canal. **Brachyspira pilosicoli** was isolated from faeces samples taken from a commercial laying flock experiencing egg drop and mortality in 28-week-old birds. This spirochete colonises a variety of species, including humans, and is an important colonic pathogen of pigs. **E. rhusiopathiae** was cultured from lung tissue of a turkey which died suddenly. **Y. pseudotuberculosis** was confirmed as a cause of weight loss and death in a batch of partridges.

### Miscellaneous other species and wildlife

**Yersinia enterocolitica** was isolated from the intestinal contents of a Pere David stag which had been euthanased in a country park; **Y. enterocolitica** was also isolated from a red squirrel found dead in a garden. **Y. pseudotuberculosis** was isolated from the liver of an Gemsbok Antelope and from a chaffinch which had been ill for two days prior to death. **M. avium** was isolated from a mesenteric abscess in an adult Grey kangaroo from a zoological collection.

## 2. Specific scanning and targeted surveillance and other studies

### 2.1 Campylobacter

A summary of findings from the confirmation and speciation of campylobacters and other related potentially zoonotic organisms submitted to the VLA via various routes, including VLA regional Laboratories and private laboratories, will be presented in the annual report.

### 2.2 Cryptosporidium

Survey of Cryptosporidium in calves

A 12 month survey to assess the potential zoonotic hazard and environmental burden of *Cryptosporidium* spp. in calves is progressing well. Cryptosporidium oocysts were detected by the fluorescent antibody test in 22 (34%) of 63 samples from calves submitted for diagnostic necropsy this quarter. A total of 16 isolates from calves with differing intensities of infection, and representing differing husbandry systems, have been genotyped so far and *Cryptosporidium parvum* was identified in 15 samples and *C. bovis* (non-zoonotic) in the other sample.

### 2.3 E. coli

A survey to enhance surveillance of *E. coli* from diagnostic submissions to RLs was introduced in 2005 to detect new and emerging strains of potential zoonotic importance (particularly VTECs) and those associated with disease in animals. This has now ended and a summary of the main findings will be provided in the annual report.

### 2.4 Leptospirosis

Targeted surveillance for leptospirosis is achieved by analysis of results from: (1) RT-PCR for pathogenic leptospires on appropriate diagnostic samples and sequencing and denaturing high pressure liquid chromatography (DHPLC) to further classify positives; (2) Antibody testing by microscopic agglutination test (MAT) on sera submitted for disease diagnosis, monitoring and export (mainly dogs). Diagnostic MAT titres are considered seropositive at 1/100 or above (1/50 for *L. Hardjobovis* in cattle) and (3) Bulk milk tank antibody testing (by ELISA) of samples submitted from dairy herds for monitoring purposes. The latter two methods are influenced by vaccination (dogs and cattle); MAT results are also very dependent on the range of serology (pools or single serovars) undertaken.

(1) 149 specimens (mainly fetal kidneys) from a range of species (mainly cattle and pigs) were examined by RT-PCR for pathogenic leptospires during the quarter. No pathogenic leptospires were detected.

(2) 3290 sera were examined from a range of species. Of 1064 canine sera, 42.7% and 5.6% were positive to *L. Canicola* and *L. Icterohaemorrhagiae* respectively, compared to 39.2% and 1.5% for the same quarter last year; of 1437 bovine samples examined for *L. Hardjo bovis*, 24.1% were positive (32.1% in 2007); 17.4% of 178 porcine samples tested for *L. Bratislava* were positive (28.8% in 2007). Other significant serovars noted included 18 dogs positive to *L. Bratislava*, 1 positive to *L. Zannoni*, 1 positive to *L. Pomona* and 34 positive to *L. Copenhageni*; 2 horses were positive to *L. Icterohaemorrhagiae*.

3) Between April and June 2008, 99 (28.5%) of 348 bulk milk antibody tests undertaken were negative, 57 (16.4%) were low-positive, 45 (12.9%) were mid-positive and 147 (42.2%) were high-positive. In 2007, comparable figures for the same quarter (406 tests) were 32.5% negative, 11.1% low-positive, 12.3% mid-positive and 42.2% high-positive. These findings continue to indicate serological evidence of potentially active infection in about 50-60% of dairy herds from the population submitting samples, although the significance of these observations is heavily influenced by vaccination status and selection bias.

## 2.5 *Streptococcus suis*

The numbers and serotypes of *Streptococcus suis* isolates from porcine diagnostic material examined by RLs between April and June are shown in the table below, with data for the same period in 2006 and 2007 for comparison.

Year	1	2	3	4	7	8	9	10	12	14	15	16	25	31	33	1/2	UT	Totals
2006	3	7					1											11
2007	2	12		1	1											2		18
2008	2	15		1	3	2	1									1	5	30

*Streptococcus suis* type 2 again predominated.

## 2.6 Toxoplasmosis

A recent comprehensive report by the European Food Safety Authority (EFSA Journal 2007, 583,1-64) highlighted the significance of toxoplasmosis as a foodborne zoonosis and the need to improve surveillance in this field. Serological examinations for *Toxoplasma gondii* using the latex agglutination test (LAT) are undertaken by the VLA on sera submitted to RLs. The findings presented below provide a summary of the serological status of samples submitted for diagnosis, monitoring and screening purposes but do not constitute a structured survey. Positive samples, as defined here, have LAT titres of 1/64 or greater and indicate a history of exposure to this protozoan parasite.

In sheep in the second quarter of 2008, 15 (43%) of 35 sera tested (from 6 separate submissions) were positive for *T.gondii*, which is similar to the prevalence seen in previous quarters. One alpaca serum sample was received and was seronegative for *T.gondii*. No samples were examined from other species.

## 2.7 *Trichinella spiralis*

From January 2006 enhanced testing for *Trichinella spiralis* (by the EU approved pepsin digest method specified in Commission Regulation SANCO 2537/2005) was extended to the domestic slaughter of all boars, sows and wild boar. Testing of samples from small abattoirs was undertaken by VLA Langford, Thirsk and Bury St Edmunds under contract to the Meat Hygiene Service and the results are summarised below. VLA Weybridge is also collaborating with the Central Science Laboratory, York, in surveying foxes.

Between April and June 2008, a total of 2839 individual samples (from 869 submissions) were received by VLA for testing in pools each consisting of up to three different submissions. There were 76 equine submissions, 702 from boars/sows and 61 from wild boar. All tests gave negative results.

## 3. Investigations into zoonotic and potentially zoonotic incidents

### 3.1 Cryptosporidiosis

Investigations to assist in human outbreaks of cryptosporidiosis linked to direct contact with animals are undertaken (under a MoU) at the request of Consultants in Communicable Disease Control (CsCDC) of HPA/NPHS and in collaboration with the National Cryptosporidium Reference Unit, Swansea and follow jointly agreed guidelines.

An outbreak of cryptosporidiosis affecting at least six veterinary students was investigated in June. It followed a calf handling practical class involving a group of 11 pre-weaned dairy calves, two of which were scouring. Cryptosporidiosis was confirmed in the latter following detection of cryptosporidium oocysts in MZN smears of faeces; *Cryptosporidium* spp. oocysts were also found in four other (non-diarrhoeic) calves using the more sensitive fluorescent antibody test (FAT). *C. parvum* was confirmed by PCR in the two scouring calves and the subtype matched that present in the six confirmed human cases, indicating likely causal association. *C. bovis* and a deer-like genotype (both non-zoonotic) were found in two of the other four FAT - positive samples. This incident coincided with the publication of a similar outbreak in veterinary students in Edinburgh in which the

cause was attributed to lapses in hygiene, especially hand washing (Gait and others, Veterinary Record 2008, 162, 843-845)

### 3.2 VTEC O157

VTEC O157 outbreak investigations are undertaken according to formal guidelines at the request of CsCDC of HPA/NPHS (under a MoU) where an animal associated source is suspected and variously involve collaboration with other organisations, including the Environmental Health departments of Local Authorities and the Health and Safety Executive. Determination of phage type (PT), Vero cytotoxin (VT) type and comparison of human and animal isolates by pulsed field gel electrophoresis (PFGE) are performed by the *E. coli*/Shigella/Yersinia/Vibrio Reference Unit of the Laboratory of Enteric Pathogens, HPA Centre for Infections, Colindale.

No requests for investigations were received this quarter. However, investigations into an outbreak of VTEC O157 phage type 34 infection were undertaken at the beginning of July and the findings will be included in the next quarterly report.

### 3.3 *Mycobacteria kansasii*

Investigations continued into *Mycobacterium kansasii* infection in a dairy herd. Several calf TB reactors have been necropsied but few visible lesions were detected and neither *M. bovis* nor *M. kansasii* isolated. The results of cultures of water and milk (as potential sources of infection) are awaited.